In Two Parts—Part

Industrial

February 1947

Standardization

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Readers Write

Western Electric Company
Hollywood, California

Gentlemen: In connection with a text book on sound motion picture engineering on which I am currently working, I would like to incorporate in the text ASA Standards Z22.40-1946, Sound Records and Scanning Area of 35-Mm Sound Motion Picture Prints, and Z22.41-1946, Sound Records and Scanning Area of 16-Mm Sound Motion Picture Prints. I would appreciate it, therefore, if you would give me permission to republish these standards.

JOHN G. FRAYNE
Supervisor
Development Engineering

• • The American Standards Association was glad to permit Mr Frayne to republish the standards providing that appropriate credit was given, along with the standard symbol designation.

The University of Rochester
Rochester, New York

Gentlemen: If a standard or tentative standard adopted by the AIEE for the graphical representation of circuit parameters (resistors, coils, capacitors) and machine elements (rotor, dc armature, series field, etc) is available, please send me a copy.

I am intending to mimeograph selected symbols for distribution to my students and would, therefore, appreciate any information you may have concerning the right of reproduction of this material.

CHARLES H. DAWSON
Instructor in Electrical Engineering

• • American Standard Graphical Symbols for Electric Power and Control, Z32.3-1946, was sent to Mr Dawson. The policy of the American Standards Association is to allow reproduction for educational purposes, provided credit is given to the ASA. This standard was sponsored by the American Institute of Electrical Engineers and the American Society of Mechanical Engineers.

Ritway Products Company
Chicago, Illinois

Gentlemen: Please advise if Swedish standards for taper pipe threads would permit their pipe fitting to fit American standard ¾-inch and ½-inch pipe threads.

E. RAWSON

• • The American Standards Association informed Mr Rawson that Sweden uses British standard pipe threads having a 55-degree angle, as against 60 degrees on American standard pipe threads. Swedish fittings and American pipes with ½-inch or ¾-inch threads will assemble with fairly good joint, however, since these sizes have 14 threads per inch in both systems.

Veterans Administration
Bedford, Massachusetts

Gentlemen: The Veterans Administration is installing at this Hospital a control laboratory for laundry and dry-cleaning practice. It is contemplated that the preliminary effort here will be the setting up of a proper laboratory, the developing and preparation of standard operating procedures for the various Veterans Administration Stations throughout the country, and later research and development, looking toward the evaluation of cleaning materials and equipment and improved cleaning practices using standard procedures adapted to Veterans Administration problems. A large part of the plan envisages keeping abreast of current work and investigations being carried out by other organizations as well as cooperating in such work to the extent possible.

It would be appreciated if you would give us any advice and information in connection with past, present, or contemplated work by you, concerned with similar problems that would be of assistance in this effort.

HUBERT C. NORMILE
Textile Technologist

• • The American Standards Association was pleased to forward a copy of the American Standard Safety Code for Laundry Machinery and Operations, Z8-1941. Although suggestions were made on several occasions before the war that standards covering practices for laundry and dry-cleaning operations ought to be developed, nothing has been done by the ASA in this field.

Crane Company
Chicago, Illinois

Gentlemen: Crane Company is conducting a Refresher Training Course for their ex-Service Men. One of the subjects presented is Standardization. After each lecture the students are asked to write a report on the subject, and I thought you would be interested in knowing the reactions I have received from these men. In almost every case they have stated that the knowledge of Standardization is very important to them in their contacts with others in sales and engineering.

W. P. KLIMENT
Engineer of Standards

Our Front Cover

Bulb blanks are shown moving from an annealing lehr to conveyor belts which carry them to inspectors. Nomenclature for glass bulbs and molded glass flares is now being undertaken by a new ASA sectional committee (see page 32). Photo—Corning Glass Works.

Industrial Standardization

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Part 2

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February, 1947 Ruth E. Mason, Editor 35 Cents

The American Standards Association is a federation of national groups dealing with standardization. Through it, government, industry, labor, and the consumer work together to develop mutually satisfactory national standards. It acts as the authoritative channel for international cooperation in standardization work.

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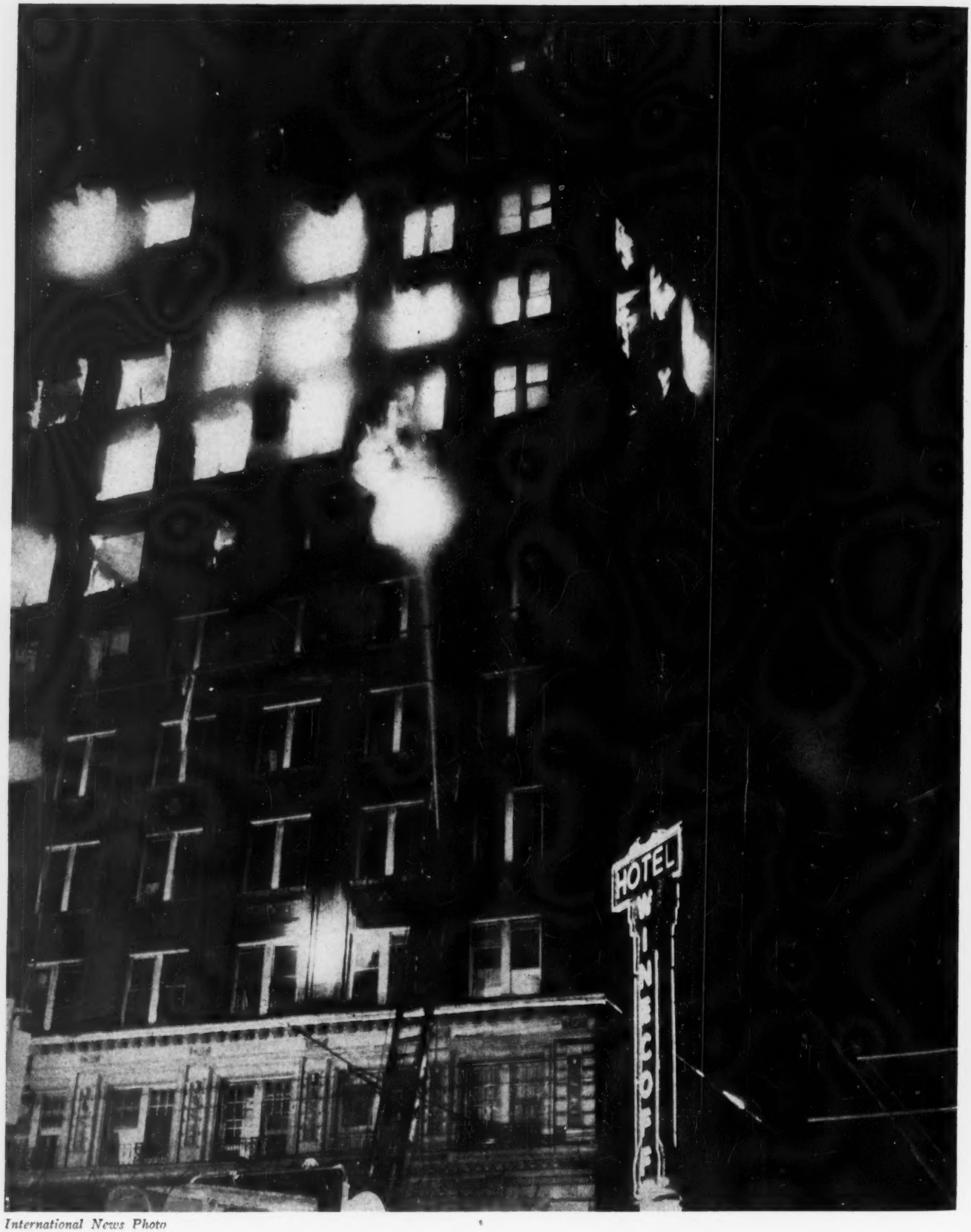


International News Photo

For article on Building Exits and Fire Safety, see page 37.

Bedding Materials Now Defined

New American Standards are expected to help remove conflicts in state laws regulating manufacture and sale of bedding

By J. Davis Donovan

AS far back as 1937—nearly ten years ago—INDUSTRIAL STANDARDIZATION published an article[1] which pointed out what wide differences existed in the various state and local laws regulating the manufacture and sale of bedding, upholstered furniture, and similar articles. The article described the major differences in the laws and called attention to the fact that these differences, bad as they were in themselves, were multiplied by regulations and interpretations to such an extent that no manufacturer of such items could ship his products in interstate commerce without fear and trembling.

To Protect Purchaser Against Disease and Fraud

All of these laws have the same ultimate purposes, which are to protect the purchaser against disease and fraud, and to safeguard the honest manufacturer and retailer against unfair competition. All of them were sponsored, and most of the enforcement of them is financed, by manufacturers. Each one of them requires a tag to be attached to every mattress, pillow, or other article covered by its provisions, upon which should be plainly inserted a description of the filling materials used. Each state has rigid stipulations as to the size, shape, and color of the tag, the size of the type, and the color of the ink to be used in printing it. There are even greater variations and requirements when it comes to the terms to be used in describing the filling materials. Where the state of the manufacturer absolutely requires, under penalty, that all of its provisions be adhered to strictly, shipment of that manufacturer's goods to an adjoining state frequently produces violations of the requirements of the receiving state; and not infrequently penalties are imposed therefor.

There is an historical reason for these conflicts in the various laws and methods of enforcement, which long ago should have been remedied. When the laws were originally passed, most of them applied only to bedding; i.e., mattresses, pillows, comforts, quilted pads, and other sundry items containing concealed soft materials, and designed to be used in resting or sleeping. The coverage of upholstered furniture and similar items generally came later.

Larger Markets Emphasize Conflict in Regulations

In the early days of the laws, the manufacture of bedding was usually a hand operation, requiring but few and inexpensive machines. The products were generally sold locally, as freight rates prohibited shipments into a distant competitive territory. With the advent of machinery, such as garnetts for making felt, filling machines, roll edgers and tufters, and the increase in both investment and production, larger markets and shipments to great areas were a natural result, and the conflict with the requirements of the many varying laws and regulations followed.

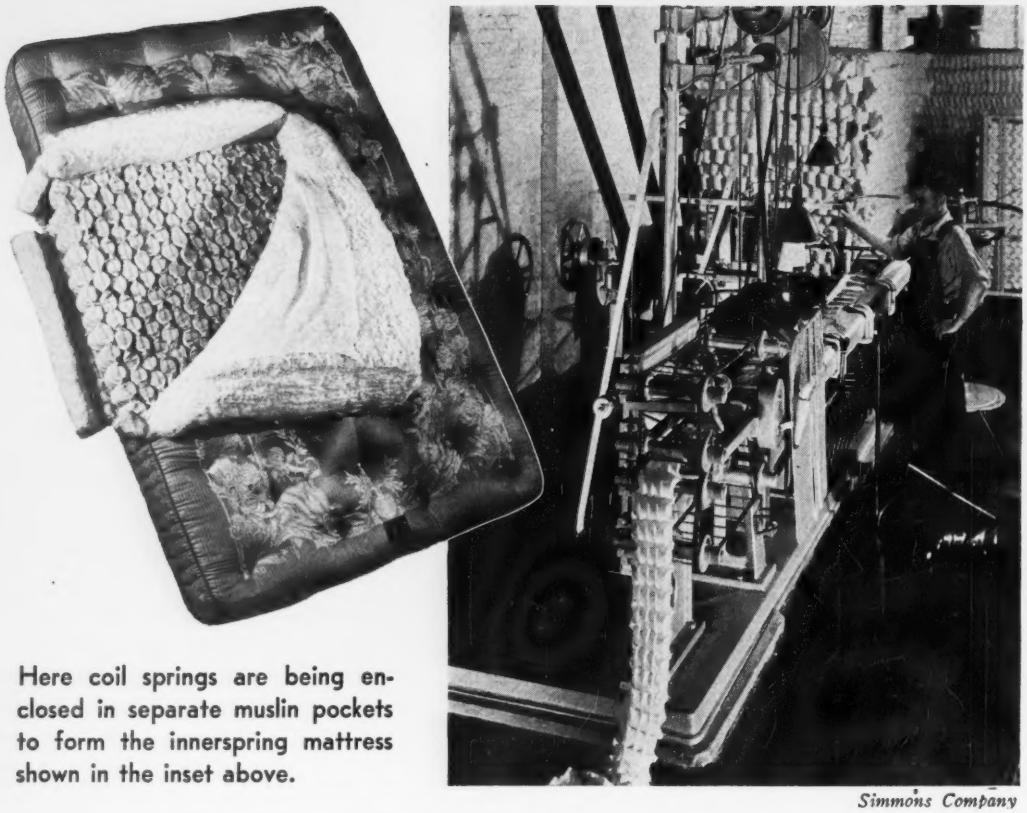
As these conflicts became more and more of a problem, a group of state officials charged with the enforcement of the laws met from time to time with the expressed object of attempting to secure the adoption of uniform bedding and upholstery laws, tagging, and enforcement. Practically no progress toward the attainment of these objectives was made during the first several meetings. Naturally, each state assumed that its laws and interpretations were the best and that uniformity could be easily secured if the others followed its lead. Different sections of the country faced different manufacturing and economic conditions and it was apparent that, left to themselves, the states would never agree upon any common ground.

Nationally Representative Committee Helps Solve Problem

At this time the American Standards Association was enlarging its program covering standardization of consumer goods and its aid was sought to help solve the problems roughly outlined above. The response of the Association was immediate. It formed the Sectional Committee on Standards for Bedding and Upholstery, L12. This committee was composed of representatives of dealers in raw materials, manufacturers, jobbers, retailers, consumer groups, and federal and state agencies. Subcommittees were appointed to draw up definitions of materials, to devise and approve methods of testing them, to formulate means of sterilizing those required to be so treated in a safe, economical, and efficient manner, and generally to simplify compliance with the state requirements. In this way, the consumer would be better advised and protected, the honest manufacturer and dealer would have

***J. Davis Donovan** is chief of the Division of Legal Administration of the Department of Health, State of Maryland. He is chairman of the Sectional Committee on Standards for Bedding and Upholstery, L12, and represents the National Association of Bedding and Upholstery Law Enforcement Officials on the committee.*

[1] "National Bedding Standards—To Protect Against Disease and Fraud," by J. Davis Donovan, INDUSTRIAL STANDARDIZATION, November 1937, page 296.



Here coil springs are being enclosed in separate muslin pockets to form the innerspring mattress shown in the inset above.

Simmons Company

little difficulty in interstate shipments, and the state enforcing agencies would be able to devote more of their time to detecting willful and persistent violations of the real purposes of the laws.

This committee and the various subcommittees started their work in 1940, and again encountered the difficulty of securing a meeting of the minds of the many and varying interests involved. Definite progress had been made, however, before the outbreak of the war. Because of conditions brought about by the conflict, interest lapsed until the fall of 1944, when this subject was included among the postwar plans of the National Association of Bedding Manufacturers. Tentative definitions of cotton, wool, and miscellaneous filling materials were given wide distribution with requests for criticism and comments. These were summarized and a meeting of the members of Sectional Committee L12 was called. After several days of discussion, definite words and phrases for describing these three classes of materials were adopted by the majority of the committee. They were then prepared for submission to the committee for a letter ballot and in the fall of 1945 received approval by most of the members who voted. When submitted to the ASA Advisory Committee on Ultimate Consumer Goods, they were recommended to the Standards Council and were finally adopted as American Standards on November 1, 1946.

Definitions and Permitted Tolerances Listed for Filling Materials

These standard definitions and tolerances are concise and easily understood. The terms "staple cotton", "cotton", "cotton by-products", "cotton shoddy", "cotton linters", "secondhand cotton", and "cotton felt" are clearly described. So are the terms "virgin wool", "wool", "Tanners' wool", "wool shoddy", and "secondhand wool", and the permitted tolerances. Descriptions of many other filling materials generally used are included in the American Standard Definitions of Miscellaneous Filling Materials but this list will have to be enlarged from time to time as new materials are developed or adapted to these industries.

The ultimate adoption of these standard definitions by the states may meet with more delay. In some states, the only requirement will be their approval by the official in charge of the enforcement of the bedding and upholstery laws. In others, regulations will require changes to make them permissible, while in a few, the law itself will need amendment. These procedures can be facilitated and hastened by manufacturers, acting through their local or national organizations. When generally accepted, a plan for consumer education should follow, and here again manufacturers and retail organizations can and should play a major part.

In connection with the other phases of the sectional committee's work, the Subcommittee on Feathers and Downs, which was dormant during the war, has been re-activated and should be able to submit its report to committee L12 in a short time. The other subcommittees are still at work and some reports of progress are looked for in the immediate future. These subcommittees cover cotton linters and mill wastes; horse, cattle, and hog hair; methods of sterilizing; methods of testing materials; miscellaneous filling materials; wool and other animal fibers.

Although the formation and approval of these definitions and tolerances has been a time-consuming task, and one which frequently threatened to bog down completely, it may reasonably be hoped that now that the initial standards have been adopted, future progress toward completion of all the committee's objectives may be hastened.

Uniform Label and Standard Descriptive Terms Aid Manufacture

There is at this time a very considerable change apparent in the attitude of many of the states. The National Association of Bedding and Upholstery Law Enforcement Officials has appointed a committee to draft a uniform label and this committee has produced such a label, which now only needs formal action for its ultimate approval and adoption. When different sizes, shapes, and colors of labels, as well as descriptive terms for filling materials, are required for each state, large stocks of labels must be carried, and each order must be

handled in the factory as a separate operation. Under these conditions, it is thus a practical impossibility to build up a reserve during slack seasons. The cost of manufacturing is increased and is reflected in the cost to the consumer. With a uniform label and standard descriptive terms, many factory operations can be eliminated, thus bringing about a corresponding decrease in both manufacturing and retail costs; inventories can be built up; prompter shipments made; and total unnecessary confusion all along the line will at least be lessened, if not eliminated. None of these changes will reduce in any way the protection to purchasers under the existing laws.

Standard Bedding Definitions Available in One Document

The three new American Standards that define the terms used in describing filling materials for bedding and upholstery cover cotton, wool, and miscellaneous materials. They were developed by a sectional committee of the American Standards Association, with bedding manufacturers, government officials, consumer groups, and retailer groups represented. The National Association of Bedding and Upholstery Law Enforcement Officials is sponsor for the work of the committee and has the administrative responsibility for it. The three standards, published together in one document, are:

Definitions (Including Tolerances) for Cotton Filling Materials for Bedding and Upholstery, L12.1-1946

Definitions (Including Tolerances) for Wool Filling Materials for Bedding and Upholstery, L12.2-1946

Definitions for Miscellaneous Filling Materials for Bedding and Upholstery, L12.4-1946

Copies of the publication can be obtained from the American Standards Association at 50 cents each.

Gas Appliance Standards Add High-Altitude Requirements

AGA Seal to Be Granted Appliances Meeting Standards

HOTEL and restaurant deep fat fryers, ranges, and unit broilers designated for use at high altitudes (between 2,000 and 5,200 feet elevation) must now meet additional performance requirements in order to merit the seal of approval of the American Gas Association. New provisions for assuring safe and efficient operation of such appliances at high altitudes are among the important additions which have been adopted recently in two new addenda to the American Standard Approval Requirements for Hotel and Restaurant Deep Fat Fryers, Z21.27-1940, and Hotel and Restaurant Ranges and Unit Broilers, Z21.3-1940. Sponsored by the American Gas Association and approved by the American Standards Association, the addenda became effective January 1, 1947.

Tests Simulate Conditions at 5200 Feet Above Sea Level

As set forth in the new specifications, the performance tests—primary consideration of the addenda—"shall be conducted at low altitude on natural gas with the main and pilot burners adjusted at normal test pressure at 26 percent above the manufacturer's specified high altitude gas input rating." Thus, it will be possible in the testing laboratory to simulate conditions equivalent to 5,200 feet elevation above sea level. Unless specified by the manufacturer, however, hotel and restaurant deep fat fryers, ranges, and broiler units will continue to be tested and approved only for use at low altitude.

Where constructional changes are made in appliances for use at high altitude over those used at low altitude, additional tests will be conducted.

Among other specific requirements which must be met for the first time are the following:

1. Drop doors on ranges and broilers must now meet maximum deflection requirements under concentrated loads without breakage or permanent damage rather than under evenly distributed loads.
2. All open-top ranges must now be equipped with burner trays.
3. Oven and broiler linings, as well as passageways exposed to flue products, must hereafter be of corrosion-resisting material or finished to withstand corrosion.
4. Gum-protective devices, complying with American Standard Z21.35-1945, must hereafter be supplied for all constant burning gas pilots of these appliances when intended for use with manufactured gas.
5. The thermostats on hotel and restaurant ranges and broilers will hereafter be required to limit the change in oven temperatures resulting from the simultaneous operation of any section of the appliance with the oven.

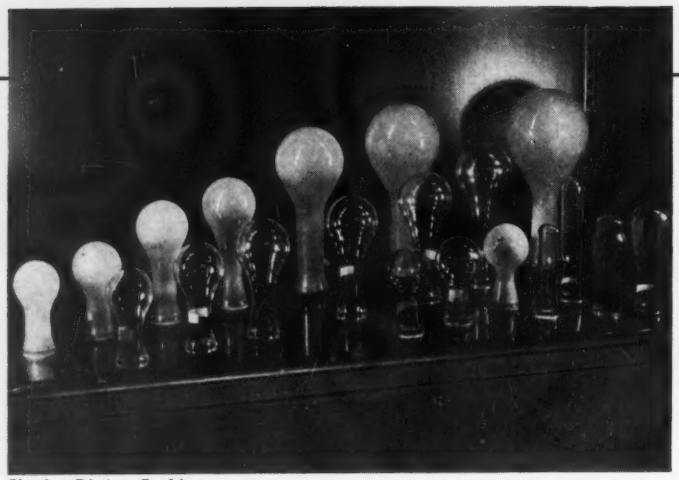
American Gas Association Sponsors Work of Committee

Until such time as the standards have been revised to incorporate the addenda, the official ASA designations of the latter will be Z21.3a-1946 and Z21.27a-1946.

Preparation of these requirements was handled by a subcommittee of the ASA Sectional Committee on Approval and Installation Requirements for Gas Burning Appliances, Z21. This committee works under the sponsorship of the American Gas Association. These addenda and additions were then printed for industry criticism and distributed to interested members and other agencies for review and criticism. Replies received were considered in detail by the subcommittee and the changes deemed desirable were made in the proposed requirements. The modified material was then presented to ASA Sectional Committee Z21 and was approved by the committee.

Addenda Now Available As Supplements

The American Gas Association, sponsor for ASA project Z21, submitted the proposed addenda to the American Standards Association for final approval. The Standards Council, final authority for such action, granted approval on October 17, 1946. The addenda have been printed by the American Gas Association as supplements to the standards.



Charles Phelps Cushing

An assortment of glass bulbs used in modern electric lamps and electronic tubes as shown in a display by Corning Glass Works in New York City.

ASA Undertakes Broad Program On Glass Bulb Nomenclature

By Albert Brann and F. J. Gallogly

AT the request of the Joint Electron Tube Engineering Council, the American Standards Association recently organized a Sectional Committee on Glass Bulb and Molded Glass Flare Nomenclature, C79. The scope of work of the new committee will cover nomenclature and designation for glass bulbs, glass bulb component parts, and molded glass flares used in the manufacture of electric lamps and electron tubes. Producers of glass bulbs and representatives of the electric lamp and the electron tube industries are members of the committee. The Electrical Standards Committee of the American Standards Association is sponsor for the project.

Two proposals for standard nomenclature, one for glass bulbs and the other for molded glass flares, will be considered by the newly organized sectional committee. These proposals were developed recently by a committee of the Joint Electron Tube Engineering Council made up of representatives of the electric lamp, electron tube, and glass bulb industries.

Essentially, the proposed standard now being considered by Sectional Committee C79 comprises a means for classifying individual glass bulbs in a system of nomenclature. In reality, it is a code which recognizes four attributes common to all bulbs and by which each bulb is differentiated from all other bulbs. These attributes are:

(1) Shape—designated by a letter or a combination of letters such as A, B, PS, etc
(2) Major diameter size—designated in eighths of an inch
(3) Characteristics which are retained in the finished electric lamp or electron tube
(4) Characteristics which are **not** retained in the finished electric lamp or electron tube

Illustration of Use of Code

Symbol	*Attribute*
T	Shape
9	Major diameter size in eighths of an inch
F	Features retained after a base is assembled on the bulb
1	Features not retained after a base is assembled on the bulb

Combined, these give the bulb designation T9F1.

Dr Albert Brann *is manager of the Specifications and Standards Department, Lamp Division, Westinghouse Electric Corporation, and chairman of ASA Sectional Committee C79.*

F. J. Gallogly, *electrical engineering department, American Standards Association, is secretary of the committee.*

No two bulbs have the same designation, however slight their differences may be. Bulbs of almost like design have almost the same designation, but not quite the same. For instance, the designation T9F1 will be changed if a bulb differs in the fourth attribute only, in which case the designation becomes T9F2 or T9F3, etc. Similarly, if a bulb differs from T9F1 in the third attribute only, it becomes T9G1 or T9H1, etc.

The letter symbol indicating the shape attribute of the bulb may denote its actual shape although this is

not always the case. In general, however, it is mnemonic in character. For instance, the letter symbol P- denotes the shape of a pear, G- of a globe, C- of a candle, F- of a flame, and T- of a tube, etc. It can readily be understood that the shape symbols for the bulbs were not assigned in alphabetical order. In fact, the first bulb to receive a designation was a P-bulb. And, oddly, one of the later assignments was the A shape.

Latecomer though it was, the A-bulb lends special interest because it had a natural shape. Its shape has the contour taken on by a ball of molten glass which is allowed to stretch itself out under the pull of gravity. Under glass-blowing conditions, this characteristic tends to give a strong bulb with a uniform wall thickness, thus facilitating its manufacture and enhancing its quality. The A-bulb, in five diameter sizes, is used in the production of practically all of the lamps made for household use. This bulb is not utilized in the electronic industry but conversely, as it were, the T-bulb is most popularly used for electron tubes.

In addition to the positive implications of the written word, there is an important unwritten concept which should be understood. This is the concept that a bulb designation is concerned with the bulb contour only. It does not apply to the weight of the bulb, nor to its wall thickness, nor to the composition of the glass, nor to any characteristic save the four attributes already discussed. In this connection, it would not be necessary to stretch very much the meaning of the word "concentric" to permit us to say that a bulb contour is concentric with the contour of the mold in which the bulb is blown. Both bulb and mold are inseparably identified by the same designation.

A system of bulb nomenclature, almost identical with that now being considered by the committee, was created in the year 1909. It was established by a Glass Committee sponsored by the Edison Lamp Works and the National Electric Lamp Association. The glass manufacturers supplying bulbs to the lamp companies were invited to be a part of the committee, the members of which were:

S. E. Doane, representing the National Electric Lamp Association

George Morrison and H. B. Rogers, representing Edison Lamp Works

A. B. Houghton, representing the Corning Glass Works

Commodore S. O. Richardson, representing the Libbey Glass Company.

At the initial meeting of the committee, held at Association Island, Lake Ontario, the administration for assigning bulb designations and for distribution of bulb designs was vested in the National Electric Lamp Association. The earliest recorded date of a bulb designation appears to have been in connection with the P19 and P19B designs, both of which were dated March 14, 1910.

The system was formally incorporated into lamp industry practice by a joint resolution of the lamp companies at a meeting January 31, 1913. The minute recording this action reads as follows:

"Bulb designations used in connection with finished lamps shall consist of a letter indicating the type, a number indicating diameter in eighths or fractions of eighths of an inch, and a letter suffix indicating a special feature."

This action also provided for a subscript number for the guidance of lamp and bulb factories but was not to be included in any lamp descriptions. This subscript number was to indicate any variations in a bulb that would not affect the angle of the sides, location of light center, finished lamp over-all length, or the base that could be used. As explained above, this system is similar to the one being followed in the proposed standards which are now under consideration.

Since the same nomenclature system will be used by the three distinct industries (electric lamp, electron tube, and glass bulb), the committee believes it desirable that its administration should reside in the American Standards Association.

In becoming the administrator of the standard, the ASA would find itself taking on a new form of activity. The proposed standard for nomenclature for glass bulbs carries with it an unusual feature so far as the typical American Standard is concerned. Generally, a standard comprises established dimensions or criteria and the standard is automatically administered by anyone who does work or makes products within the limits of the standard. One might say it is "self-administered". But this situation does not hold true in the case of the proposed standard. This is a standard that is dynamic in nature, being in the form of a set of rules which will be used to govern the assignment of designations for new bulbs. It is this dynamic feature that makes the standard useful and unique and that prevents it from being "self-administered". Anyone desiring a designation for a new bulb will simply make application to the ASA, which will assign a designation within the rules of the standard and send the new designation to the one requesting it.

The proposed national standard is simply a statement of good American practice which has proven itself useful over a long period of years. When and if it is approved, it will avoid confusion in the manufacturing industries and will provide standardized information in the application industries. It will be simple to administer and easy to understand, necessary characteristics for any useful standard.

Members of Sectional Committee C79 On Glass Bulbs

The members of the Sectional Committee on Glass Bulb and Molded Glass Flare Nomenclature, C79, represent glass bulb producers, the lamp industry, and the electron tube industry. Dr A. Brann, Westinghouse Electric Corporation, is chairman, and F. J. Gallogly, American Standards Association, is secretary. The committee members and their representatives are:

Glass bulb producers:

Corning Glass Works, *E. F. Ling*

Libbey Division of Owens' Illinois Glass Company, *H. W. Rogers*

General Electric Company, *T.H. Bruce*

Lamp industry:

Champion Lamp Works, *G. A. Tamis*

Duro Test Corporation, *D. Trutner*

General Electric Company, *T. H. Bruce*

Sylvania Electric Products, Inc, *R. H. Williams*

Westinghouse Electric Corporation, *Dr A. Brann*

ASA Sectional Committee on Electric Lamps, C78, *G. L. Diggles*

Electron tube industry:

Joint Electron Tube Engineering Council, *Dr A. Brann; H. S. Lovatt; E. F. Peterson*

The National Electrical Code

1947 Edition

By Alvah Small

President, Underwriters' Laboratories, Inc; Chairman, Sectional Committee on National Electrical Code, C1

THE half-century which has elapsed since the publication of the first edition of the National Electrical Code is the period during which the use of electricity for light, heat, and power developed from an infant to an adult status. To some extent, the Tables of Contents and the indexes, especially, of the successive editions of the Code are physical measures of the industry's growth.

Code Still Gaining in Recognition and Application

During about one half of this 50-year history, the successive revisions of the Code have been accomplished under the sectional committee procedure of the American Standards Association. The writer has served continuously as chairman since the sectional committee plan was installed. To him at least, there is special significance in the increasing extent of recognition and of application in the field which are accorded the Code. Many differences, of point of view, of interest, and of effects of changes or of new provisions are recalled. Some were controversial only while in the incubation period. Others have remained so during several biennial periods. Outstanding in this latter group is the greatly lessening or the omission of insulation on that conductor of alternating-current circuits which is grounded on the distribution, at the consumer's services, or both. Also, the requirement for a tamper-resisting fuse in branch circuits has as yet failed to receive the support of the entire industry.

The sectional committee, before adjourning the meeting at which the 1940 edition of the Code was determined upon, planned for a subsequent revision to be published in 1943. Instead, because of wartime devotion to larger national affairs, various emergency amendments to the 1940 text were promulgated by a special procedure. After V-J Day it became feasible for the committee to meet for consideration of proposals for the revision now to be known as the 1947 edition.

The sponsor's report to the Standards Council relates the publication, prior to that meeting, of changes and new material being advocated; likewise, it announces the circulation of preprints of the proposed and forthcoming text to its large membership. This account, therefore, will not attempt to report the meeting of the sectional committee nor the evidence of consensus to which ASA's approval certifies.

No change in form or arrangement was undertaken. The introduction reports verbatim the 1940 statement of purpose and scope and other non-technical and general material. In Article 100, various new or amended definitions will be found and those which duplicate definitions in C-42 are identified accordingly.

The changes in Article 110 likewise have no important technical significance.

Plan for Determining Allowable Loads on Branch Circuits Revised

Installers and enforcement personnel will find it necessary to compare the new provisions of Articles 210 and 220 with the former text because of a revised plan for determining allowable loads on branch circuits and a tabular instead of a textual method of specifying various significant layout limitations.

Generally speaking, requirements for services, in Article 230, are those of the previous edition. This is also the case for Article 240, overcurrent protection; Article 250, grounding; and Article 280, lightning arresters.

In Chapter 3, Articles 300 to 390, inclusive, dealing with wiring methods and materials, will be found numerous minor changes. Some of them are appropriately repeated several times. Outstanding, however, is the new Chapter 310, having to do with circuit conductors and their insulation. So-called GRS synthetic rubber and also thermoplastic compounds are now accepted for general use at voltages not over 600. Conductors No. 14 and 12 Awg with these and the prewar type of rubber insulation are permitted with 1/16 inch reduced over-all diameter. The allowable operating temperature for Type R (New Code) wire is increased to 60 C so that the Type RP class of insulation, previously recognized for that temperature, has been dropped.

New Article on Prefabricated Buildings Is Included

A new Article 390, Prefabricated Buildings, of this chapter constitutes a formal cross reference to provisions in other articles of the Code as to details of wiring methods to be recognized.

Two of the nine articles of Chapter 4, Equipment for General Use, should have special mention, while the changes in the others may well be considered as of minor general importance. The new provisions for safeguarding installations employing infrared lamp industrial heating appliances (Section 4237) are the result of recommendations of a technical subcommittee having a representative membership of experts in this new field.

The new text for Article 410 registers not only editing and correlations of regulations applying to fixtures employing incandescent lamps, but includes, in corresponding detail and for the first time in the National Electrical Code, provisions for electric discharge types of lamps which have been developed and employed so extensively during the last decade.

In Article 450 will be found entirely new provisions for distribution within consumer premises involving

primary supply at over 600 volts to several transformers, each located relatively close to the point of use of their secondary currents and, in certain types of layout, with ties so interconnecting the transformers that loss of power at the several load points is unlikely to result from one supply circuit failure.

Article on Hazardous Locations Includes Important Changes

In Chapter 5, Articles 500 and 510 both include important changes. In the case of Article 500, Hazardous Locations, recognition is registered of extensive field experience with the former plan for determining upon safeguarding against both fire and explosion hazards occurring because of either normal or faulty operation of electrical equipment acceptable in ordinary locations. The new text provides for classification of locations according to whether or not the hazardous conditions are judged to be normal or the result of unusual conditions and accidental occurrences.

In the case of Article 510, provisions appear for the first time providing for safeguarding in airplane hangars, gasoline dispensing and service stations, and bulk storage plants.

In Chapter 6, Special Equipment, new Articles 630 and 670 cover the subjects of electric welders and machine tools. In the former case, another technical subcommittee contributed recommendations based upon consideration of the experience in this field during wartime shipbuilding and similar activities. The provisions of Article 670 were first promulgated as a wartime emergency subject and correspond in principle and details with similar provisions of the American War Standard Machine Tool Electrical Standards, C74-1942.

Standard for X-Rays Furnishes Data Used

In Article 660, X-Ray Equipment, the new text is based upon the fundamentals for safeguarding found in the American War Standard for Industrial Use of X-Rays, Z54.1-1946.

Chapter 7, Special Conditions, includes a new Article 725, Remote-Control, Low-Energy Power, and Signal Circuits. In many respects, the provisions of its text are those of Article 800 of the 1940 edition of the Code.

Accordingly, the title of Chapter 8 is now Communications Systems, and

The National Fire Protection Association, sponsor for the National Electrical Code, has organized its Electrical Committee to qualify as a sectional committee under the procedure of the American Standards Association. Alvah Small, president of Underwriters' Laboratories, Inc, is chairman and V. H. Tousley, electrical field engineer, National Fire Protection Association, is secretary. This committee, which includes in its membership outstanding experts in the field of electrical fire safety, includes representation of the following organizations:

American Institute of Electrical Engineers, *L. F. Adams; W. R. Smith (alternate)*
Associated Factory Mutual Fire Insurance Companies, *E. E. Turkington; C. F. Hedlund (alternate)*
Association of American Railroads, *M. A. Pinney; G. L. Sealey (alternate)*
Association of Mill & Elevator Mutual Insurance Companies, *C. M. Park; L. P. Dendel (alternate)*
Electric Light & Power Group, *E. A. Brand; W. R. Bullard; Howard R. Stevenson (alternate); O. K. Coleman; J. C. Langdell; L. W. McCullough; W. C. Wagner; C. M. Fife (alternate); J. A. Hill (alternate); H. E. Kent (alternate); B. Z. Segall (alternate); John M. Turnbull (alternate)*
Illuminating Engineering Society, *Hoyt Steele; George E. Shoemaker (alternate)*
International Association of Electrical Inspectors, *N. E. Cannady; J. G. Fisher (alternate); L. W. Going; W. L. Gaffney (alternate); W. J. Mahan; R. H. Manahan; B. C. Hill (alternate); F. H. Moore; E. J. Stewart (alternate); F. N. M. Squires; B. A. McDonald (alternate); J. E. Wise; Samuel R. Todd (alternate)*
International Association of Governmental Labor Officials, *J. S. Zebley; J. J. Scherer (alternate)*
International Association of Industrial Accident Boards & Commissions, *C. George Krueger; George Kimball (alternate)*
International Brotherhood of Electrical Workers, *Wm. Walker; E. J. Brown (alternate)*
National Association of Building Owners & Managers, *Alfred Pomm; Paul Heidman (alternate)*
National Board of Fire Underwriters, *Clarence Goldsmith; Louis A. Vincent (alternate); George L. Swan; J. H. Arnold (alternate)*
National Bureau of Standards, U. S. Department of Commerce, *J. A. Dickinson; Richard L. Lloyd (alternate)*
National Electrical Contractors' Association, *George Andrae; D. B. Clayton (alternate); L. T. Souder (alternate); T. W. Wilmer (alternate); L. H. Cleary; Wm. Biester (alternate); Robert E. Denike (alternate); John H. Kuehne (alternate)*
National Electrical Manufacturers Association, *L. F. Adams; C. H. Bissell; Arthur E. Pringle; E. W. Seeger; Frank Thornton, Jr; H. H. Weber; C. A. Finkel (alternate); H. G. Knoderer (alternate); W. F. Ogden (alternate); G. E. Rolston (alternate); H. E. Ruggles (alternate); A. B. Smith (alternate)*
Stock Fire Insurance Inspection Bureaus, *K. W. Adkins; R. C. Loughead; James D. Lynett; Robert J. Moran; H. N. Pye; F. O. Evertz (alternate); George Welman; Fred A. Williamson; R. W. Wetherbee (alternate); G. S. Casterline (alternate); C. M. Harman (alternate); Victor C. Moulton (alternate); W. W. Wise (alternate)*
Telephone Group, *S. B. Graham; A. H. Schirmer (alternate)*
Underwriters' Laboratories, *M. M. Brandon; W. R. Rilling (alternate); Alvah Small; Guy E. Manning (alternate)*
U. S. Conference of Mayors, *Frank G. Camus; W. A. Haig; Dewey L. Johnson; C. A. Ward; Ralph W. Wiley; P. J. Hicks, Jr (alternate); E. C. Knox (alternate); E. T. Quinn (alternate); D. J. Talbot (alternate); C. S. Whitaker (alternate)*
U. S. War Department, *A. J. Buckley*
Canadian Standards Association (Liaison), *E. W. McLeod*

The 1947 edition of the National Electrical Code (American Standard C1-1946) has been published by the National Fire Protection Association in a cloth-bound 6 x 9-inch desk reference edition, and by the National Board of Fire Underwriters in a pocket-sized, paper-bound edition, widely used in the field. The cloth-bound edition can be ordered through the American Standards Association at $2.00 per copy; the paper-bound edition at 10 cents.

Article 800 of this chapter deals with communication circuits only.

Chapter 9, Construction Specifications, and Chapter 10, Tables, Diagrams, and Examples, are modified only as is appropriate because of changes appearing in the preceding chapters of the new edition.

Because of unsettled conditions during reconversion, this new edition of the Code will be identified by its publishers as the 1947 Edition and its field application will have been delayed somewhat. Nevertheless, consideration is already being given to problems that require attention because of many new applications in the field of electricity and their contributions to the art of living in our postwar world.

Tool Engineers and ASA Plan Closer Cooperation

THE chairman and members of the National Standards Committee of the American Society of Tool Engineers, at a recent meeting with John Gaillard, mechanical engineer of the American Standards Association, discussed how the ASTE and ASA could most effectively cooperate in carrying out standardization work. As a result, the ASTE and the ASA staff have come to a better understanding of each other's problems and have agreed upon a plan for closer cooperation.

Society Membership Now Up to 20,000

The American Society of Tool Engineers, which was founded in 1932, with its first local chapter in Detroit, now has a membership of almost 20,000 and has just organized its seventy-fifth chapter. The Society is a Member-Body of the American Standards Association and is represented on the Standards Council by W. H. Smila with W. F. Wagner as alternate. Mr Smila is chairman of the National Standards Committee of the ASTE and Mr Wagner is a member of the committee. Mr Smila also represents the ASTE on the Mechanical Standards Committee of the ASA with I. F. Holland, second vice president of ASTE, as an alternate.

As a group of experts in production engineering, the tool engineers are an essential element in the industrial picture and their active cooperation in the national standardization work is, therefore, of great importance to the ASA.

Upon request by the ASTE, the ASA initiated in 1940 a new project on Classification of Materials for Tools, Fixtures, and Gages, B52, for which the Society became sponsor and organized a sectional committee. The work of this committee had barely been started when the United States entered the war and activities in this field were temporarily taken over by a committee of the War Production Board. The ASTE now plans to revivify its project in the very near future.

In addition to being interested in project B52, the ASTE takes part in the work on the following projects: Screw Threads, B1; Allowances and Tolerances for Cylindrical Parts and Limit Gages, B4; Small Tools and Machine Tool Elements, B5; Gears, B6; Code for Pressure Piping, B31; Wire and Sheet Metal Gages, B32; Stock Sizes, Shapes and Lengths for Iron and Steel Bars, Including Flats, Squares, Rounds and Other Shapes, B41; Classification and Designation of Surface Qualities, B46; and Drawings and Drafting Room Practice, Z14.

ASTE Program to Be Coordinated with ASA Work

As a result of the ASTE-ASA conference, the National Standards Committee of the ASTE has decided to have its own standardization program carried out entirely in coordination with the ASA work. Specifically, the Society plans to establish ASTE standardization projects that in its opinion should be undertaken. The scope of each of these projects will be clearly defined. The Society will then organize an ASTE committee with wide representation from its own membership and select one of its members to serve as its chairman. If the ASTE project comes under the scope of an existing ASA sectional committee, the Society will appoint its project chairman as the ASTE representative on the ASA committee. In case there is no ASA committee on a subject in which the ASTE is interested, the Society will ask the ASA to organize such a committee and may offer to act as its sponsor. In this way, the ASTE membership will be kept informed in all cases about the development of ASA projects in which it has an interest and will be able to take an active part in decisions on the establishment of the American Standards concerned.

The decision of the ASTE National Standards Committee to discuss its problems in this way with the ASA staff is welcomed, Dr Gaillard has explained, because exchange of information regarding the problems of a Member-Body on the one hand and the basic philosophy and procedure of ASA work on the other, is invaluable with a view to finding the most effective solution for a Member-Body's problems.

Dr Addams S. McAllister

Dr Addams Stratton McAllister, engineer and former assistant director of the National Bureau of Standards, died in a hospital at Clifton Forge, Virginia, on November 26. He was 71 years old.

With the National Bureau of Standards since 1921, Dr McAllister had an active role in the early history of the American Standards Association, then the American Engineering Standards Committee. He was stationed in the ASA office in 1921 and 1922 for liaison work with the ASA, and took an active part in the early development of the ASA safety code program. Dr McAllister was assistant director of the National Bureau of Standards from 1930 until his retirement in 1945. He was a member of the ASA Standards Council from 1930 to 1945.

He was the author of several books and articles on engineering subjects for the technical press, and was the first to propound and formulate the law of conservation as applied to illuminating engineering calculations.

Building Exits and Fire Safety

By Robert S. Moulton

Application of Building Exits Code could prevent serious loss of life from fire; recent tragedies emphasize need for enforcement of safety rules

Herald Tribune—Kell

Outside fireproof staircase leads to street through ground-floor passageway in National Board of Fire Underwriters' building.

WHEN a serious fire breaks out in a place where a large number of people are congregated, panic may account for the loss of more lives than actual smoke and flames. Human fear as exemplified by such irrational acts as stampede plus poor exit facilities have combined to make some of the country's greatest fire tragedies. Two hundred and seven died in a Natchez dance hall fire when flaming combustible decorations cut patrons off from the sole exit; escape via windows was impossible, for they were nailed or securely fastened. Thirty-five died in an Atlanta hotel fire, May 16, 1938, because flames swept up open stairways and elevator shafts to trap occupants; exits were inadequate to evacuate guests. Nearly 500 died in a 1942 Boston night club fire; inadequate and locked exits combined to make this one of the country's greatest fire disasters.

The nation has more recently been saddened by an epidemic of hotel fires in Chicago, Dubuque, Iowa, and Atlanta with a heavy loss of life. The Winecoff Hotel in Atlanta, which burned December 7, 1946, was of so-called "fireproof" construction but as in the case of other fires the contents, combustible trim and finish, furnished sufficient fuel for a disastrous fire which accounted for the lives of 122 persons. The fire spread rapidly from floor to floor up an open stairway. The arrangement of the stairway, which was similarly responsible for the loss of life in the LaSalle and Canfield Hotel fires, in Chicago and Dubuque respectively, has long been recognized as perhaps the most important single element in life hazard from fire and is clearly prohibited by the NFPA Building Exits Code, which has been approved as American Standard by the American Standards Association (ASA A9.1-1946), and by most modern building codes. The delay in notifying the hotel guests of fire, inherent in the system of ringing room telephones individually or bell boys knocking on the doors, again was apparently a factor in the large lifeloss in the Atlanta disaster. There was only one exit in the Winecoff—clearly a violation of the Building Exits Code, which stipulates at least two, and remote from each other.

The tragedy of these fire disasters is that the "safety blueprints" are well known and available to all in the Building Exits Code which has just been revised and is now in its eighth edition. The whole matter of life safety is comparative at best, and no possible code can assure 100 percent safety under all conditions. Any code is only as good as the agency *enforcing* it. The purpose of this Code is to specify the number, size, and position of exit facilities, sufficient to empty buildings promptly in case of fire or other emergency and to provide for construction and protection to minimize danger to life from fire, smoke, or resulting panic before buildings are emptied. The present Code includes general requirements and specific provisions on schools, department stores, factories, hospitals and institutions, places of public assembly, office buildings, hotels, and apartment houses. The exit provisions in the present Code are based upon the use of interior finish materials of ordinary types such as wood or plaster. Where interior finish materials are used having a higher combustibility, greater rate of fire spread, or potentialities of greater generation of smoke or fumes than wood, the exits specified in this Code may not be sufficient to provide adequate life safety from fire.

Since the very early days of building codes there has been some effort made to specify adequate exits in the interest of life safety. Many of the earlier requirements, however, were very elementary and were apparently

Robert S. Moulton, *technical secretary of the National Fire Protection Association, is secretary of the Committee on Safety to Life of the National Fire Protection Association, which is the Sectional Committee on the Building Exits Code, A9, of the American Standards Association.*

drafted with little understanding of the actual situations that might develop in case of fire or other emergency. Each major fire where there was loss of life led to the introduction of requirements designed to prevent loss of life in similar future disasters, but such requirements were commonly very imperfect and there was no basis for any scientific approach to the entire problem. The first really comprehensive "safety blueprint" was the Building Exits Code. It can be readily shown that the buildings in which the major losses of life by fire have occurred have fallen far short of the standards of this Code.

Following several fires in which there was major loss of life, the National Fire Protection Association in 1913 organized a Committee on Safety to Life to make a special study of the problem. As a result of a careful study of notable fires involving loss of life such as the Binghamton Clothing Factory Fire, the Iroquois Theatre Fire, the Collinwood School Fire and the Triangle Shirtwaist Company Fire, the committee developed advisory regulations for the construction and arrangement of exit facilities for classes of buildings presenting the greatest life hazard. The committee proceeded on the basis that there are a number of factors bearing upon the degree of life hazard in a burning building, including the hazard of occupancy, whether the contents are relatively slow burning, of average combustibility, or of an extra-hazardous nature. The presence or absence of automatic sprinkler protection, the construction, and height of the building were other factors that were taken into consideration. Rules for exits were developed so that their number, width, and arrangement would be varied in proportion to the hazard as expressed in a formula in which the various factors just mentioned were duly incorporated.

After several years of study during which successive reports were issued on various phases of the subject, in 1921 the National Fire Protection Association was requested by the American Standards Association to accept sponsorship for a Building Exits Code. At that time, the committee was reorganized to qualify as a sectional committee under ASA procedure, a number of additional members being appointed for this purpose. Under new auspices, the committee enlarged and extended its work, revising and perfecting the standards prepared in earlier years and extending the fundamental principles already developed to include additional occupancies.

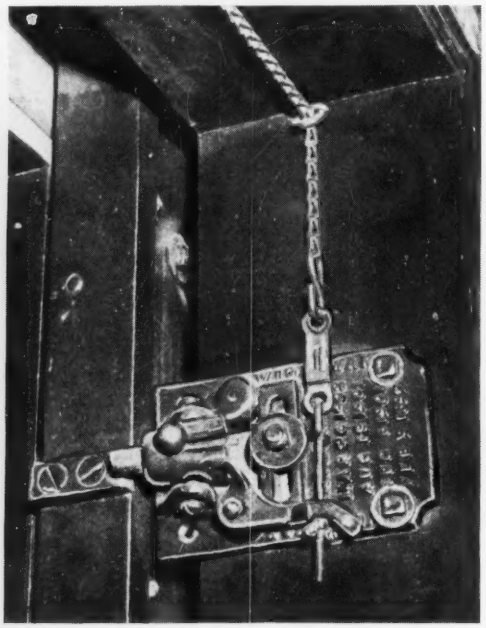
The NFPA Safety to Life Committee is a representative one made up of a devoted group of men, many of whom have made safety to life from fire a lifelong study. The membership includes representation of building officials, architects, state and government authorities, fire chiefs, fire protection engineers, and various groups affected by the application of the Building Exits Code requirements.

The procedure of the committee, which is conducted in accordance with the regular method of operation of technical committees of the National Fire Protection Association, is designed to secure a representative cross section of opinion and give everyone interested an opportunity to present his views. The annual meetings of the National Fire Protection Association, attended by representatives of over 150 national organizations and a large number of individuals (the Association has 11,000 members in over 50 countries throughout the world) interested in the preservation of life and property from fire, consider each of these reports carefully before acting thereon.

After approval of the NFPA, the successive editions of the Building Exits Code have been submitted to and approved by the American Standards Association.

The Code is a comprehensive docu-

Herald Tribune—Kell



Fireproof doors in the NBFU's model fireproof building are held open by a fusible link (see above), part of which melts when heat from a fire reaches 165 degrees, releasing the door and isolating the flames.

ment of over 100 pages which gives detailed requirements for stairways, doors, ramps, aisles, corridors, horizontal exits, elevators and escalators, outside stairs, slide escapes, alarm systems, drills, signs and lighting, and other features. The detailed application of this general provision is given in chapters with specific requirements for special classes of occupancy.

Code Requires Two Exits

One of the fundamental principles of the Code is that from every building or section there shall always be two available means of egress, so located as to be quickly and conveniently accessible and available for use at all times when the building is occupied. This usually calls for two or more stairways or doors so located that the maximum travel to reach them will not be over a specified figure which varies between 75 and 150 feet, depending upon the hazard of occupancy and the character of the building and its protection. Stairways are measured in 22-inch units, the assumed optimum width for one file of persons descending stairs as determined by extensive tests. Ordinarily the minimum width of a stairway specified is two units, or 44 inches, with some permissible deduction for protecting hand rails or door jambs. All stairways to furnish safe means of exit should be enclosed with walls and partitions having a degree of fire resistance at least sufficient to keep out any fire for an ample time for evacuation of the building. If there had been enclosed stairways at the Chicago, Dubuque, and Atlanta fires it is doubtful that the death toll would have been anywhere near as large. All doors should swing with the exit travel and should be kept unlocked at all times when the building is occupied. The price of locked exits is apparent in the fire at the Diamond Candy Company in Brooklyn, N. Y., in 1915 when employees vainly tried for 15 minutes to open a locked trap door to escape. Signs and lighting should be properly arranged and countless other details considered which may have an important effect on life safety in individual buildings.

One of the major features of the Building Exits Code is the relation of exit capacity to population. The Code provides for determining the population of the building, using figures giving the maximum number of persons per unit of floor area as determined by actual counts of a large number of typical buildings. Having determined the population, a sufficient exit capacity is then specified to permit evacuation of the structure in a reasonable time.

"There is no record of any sweeping fire, with resultant loss of lives, in hotels, apartments, or other places of assembly when erected and protected in accordance with modern building standards which have been developed by experts," Curtis W. Pierce, president of the National Fire Protection Association, told a national conference on hotel fire safety called by the NFPA January 16. If the rules laid down in the Building Exits Code had been applied to all hotels and other public buildings the appalling loss of life from fire that has shocked the nation during the past few months would have been prevented, it was emphasized at the meeting.

Urging the adoption of modern fire protection standards for all types of buildings, Mr Pierce said, "Old properties which cannot be made disaster-proof, due to defects in construction, and those whose owners cannot or will not comply with known safety-to-life standards, should be closed and forever condemned."

The National Fire Protection Association now has a committee at work on a model uniform law intended to put the existing standards into effect. The membership of the committee includes fire marshals, fire chiefs, and hotel interests.

No discussion of building exits is complete without some mention of fire escapes. The NFPA Committee on Safety to Life regards fire escapes only in the light of an expedient to correct deficiencies in existing buildings and does not recognize them as an approved means of exit for new structures. The outside stairs commonly found on existing buildings for use as fire escapes are utterly inadequate, flimsy, precipitous structures, unshielded against fire in the structure to which they are attached and often terminating on balconies high above the ground level. The Committee on Safety to Life has consistently condemned the use of fire escapes as required exits and reluctantly provide for them in the NFPA Building Code as an expedient to remedy deficiencies in existing buildings where it is not practicable to require reconstruction of inside stairways. The Committee on Safety to Life is able to show examples such as the Binghamton Clothing Company fire in 1913 that outside fire escapes are often useless. Here, a four-story manufacturing building took fire on the ground floor. It was equipped with nonstandard inside stairs and a set of outside stairs unprotected from fire in the building. Fire sweeping up the stairs forced the workers on the top floor to fall back to the fire escape, but they found it worse than useless. The windows were flooding it with flame and smoke. There was nothing for them to do but await roasting or leap four stories to a hard pavement. Led by the NFPA Committee on Safety to Life, there has been a tendency away from fire escapes.

Old Buildings Are Main Problem

If buildings are to be safe for human occupancy, adequate exits are essential. State governments have a legal right to require that exits shall be suitable in number, size, and location. This power is generally exercised through local building codes for new buildings; existing buildings, which present the greater life hazard, cannot be controlled by building codes. There were building codes in effect in Chicago and Atlanta, but the LaSalle and Winecoff hotels outdated them. The life hazard in old buildings can, however, be corrected by proper exercise of the police power by fire marshals and other public authorities. Under the police power, any undue hazard to life can be abated, even though the building in which exits were in accordance with all legal requirements when erected.

Inspection of representative codes discloses that the degree of safety assured occupants of buildings varies widely. There is no apparent reason why more emphasis should be placed on the subject in one locality than in another. That such a condition exists seems to be due partly to the

development of regulations independently in different parts of the country, partly to the existence of varying ideas on what constitutes reasonable provision for safety, and partly to a lack of information on fire safety and proper construction fundamentals.

This knowledge is available in the American Standard (NFPA) Building Exits Code. *Standardization* with the Building Exits Code as a basis plus rigid enforcement is the answer to such tragedies as the Cocoanut Grove fire in Boston and the hotel fire epidemic in Chicago, Dubuque, and Atlanta. The natural American reaction to such disaster is a universal cry "there ought to be a law". A law is only as good as its enforcement. We have the tools to work with now. What we do need is regular and periodic inspections to see that codes are observed and enforced.

Safety Standards Described in New ASA Book

In line with the nationwide trend toward promotion of safe practices and the reduction of accidents, the American Standards Association is distributing a new booklet entitled *American Safety Standards* which outlines the complete program of standardization in the field of safety as undertaken through the medium of the Association. Included in the pamphlet, along with a resume of the ASA's part in the history of the safety movement, is a brief description of those standards already approved and the status of others under development. Copies may be obtained by writing to the American Standards Association, 70 East 45th Street, New York 17, N. Y.

Armstrong Named Head Of Asia Institutes

Brigadier General Donald Armstrong (ret), now assistant to the chairman of the ASA Executive Committee and formerly commandant of the Industrial College of the Armed Forces, has been elected president of the Asia Institutes. The School for Asiatic Studies, the Institute of Asiatic Economics, and the Iranian Institute make up the Institutes.

Start Work to Prevent Aviation Fires

"SIXTY percent of the air accidents in the past three months involved fire in the air or at time of impact," Percy Bugbee, general manager of the National Fire Protection Association, declared in announcing the formation of a reorganized Committee on Aviation and Airport Fire Protection.

"Our committee," Mr Bugbee stated, "will devote itself to the reduction of these losses by the application of sound fire protection engineering principles. The industry and the national and international regulatory bodies are aware of the problem and are cooperating with the National Fire Protection Association in this work."

Daniel deR. M. Scarritt, manager, Associated Aviation Underwriters, is chairman of the committee. Colonel E. E. Aldrin, Council member, Institute of the Aeronautical Sciences, and chairman of the New Jersey Aviation Commission, heads the Executive Section.

Five subcommittees have been appointed. Jack Curtis, safety director, United Air Lines, heads the Commerical Air Operations section. Jerome Lederer, vice president, National Aeronautic Association, is chairman of the Personal Air Operations group. Allen W. Dallas, chief engineer, Air Transport Association, and H. L. Hansberry, acting chief, Powerplant Section, Civil Aeronautics Administration Experimental Station, are co-chairmen of the Aircraft Fire Prevention and Protection Committee dealing with design and installation problems.

Ground operations have two of the five subcommittees, with Calvin Lauber, National Board of Fire Underwriters, chairman of the Airport Fire Protection Committee. George Tryon of the National Fire Protection Association heads the Committee on Aircraft Fire Fighting.

The international aspect of the problem is recognized in the membership roster with the Provisional International Civil Aviation Organization participating as well as foreign airline operators and governmental agencies.

ASA Will Organize Project On Optics

Representatives of technical and scientific societies, manufacturers of optical materials and equipment, the Army and Navy, and other groups interested in putting the science of optics into use, met January 14 and recommended that the American Standards Association organize a committee to develop standards which may affect the entire field of optics. The conference pointed out that the work of such a committee will necessarily represent a very long-range program. In addition to the preparation of a standard glossary of terms which will resolve the differences between the terms now used by different groups, and will be readily understood by all concerned, the work is expected to include standards for the sources of optical energy; reflectors; mountings for optical elements; spectrographic equipment; and general optical instruments. It will include color measurements, and the relation between mental and physical processes affecting vision.

The Optical Society of America will serve as sponsor for the proposed new project, thus taking the administrative responsibility for its progress.

Work Will Include Problems of Color and Vision

The conference recommended that the scope of the work cover:

"The formulation of terminology, definitions, standards, and specifications in the general field of optics; and the establishment of methods of testing, rating, and classifying the performance characteristics of materials and devices used in optics; including the methods for the specification and description of color and also including the psychophysics of vision."

The sectional committee which will be set up under the procedure of the American Standards Association will bring together representatives of the groups now working on different phases of optical science and on the manufacture and use of optical equipment and supplies.

John W. Robinson Joins ASA Staff

THE American Standards Association is pleased to announce the appointment of John W. Robinson who, as packaging engineer, will make studies on standardization in the packaging field with particular reference to the proposed international project on frozen foods.

Mr Robinson has had many years of packaging experience as a former technical adviser to the Paper Section of the National Bureau of Standards; to the Paper Bag Institute; and to the OPA Advisory Committee of the Pulp, Paper Products and Machinery Industries.

Because of his work, he was recommended by the head of the Simplification and Standards Division of the National Bureau of Standards to Howard Coonley, present chairman of the Executive Committee of the ASA, who was then serving as Director of the Conservation Division of the War Production Board. Mr Robinson became his assistant.

During Mr Robinson's stay in Washington as special representative for the Potdevin Machine Company, he is credited with having obtained a 39½ percent price adjustment from the OPA—the largest price adjustment in the capital goods industry. In this particular sphere, he took an active part in formulating the reconversion policies of the capital goods industries and assisted in the preparation of the briefs studied by both houses of Congress relative to extension of the OPA.

In addition, Mr Robinson has had 18 years of industrial engineering experience as "administrative assistant to the president" of Bemis Brothers Bag Company and the Potdevin Machine Company. Here his work was essentially administrative—the planning of coordinating operations, time and motion studies, production and budget control, cost analysis, market research. He was concerned also with sales promotion, primarily through the simplification, standardization, and redesign of products in order to make substantial savings in material and labor.

Dr Marton Is On Staff of NBS

Principal Physicist in Electronics Section

THE appointment of Dr Ladislaus L. Marton as principal physicist in the Electronics Section of the National Bureau of Standards has been announced by Dr E. U. Condon, director of the Bureau. Dr Marton joins the Bureau staff from the faculty of Stanford University, where he was associate professor of Physics and headed the Division of Electron Optics.

Dr Marton will initiate a program of research on the basic theory, methods, and applications of electron and ion beam devices, Dr Condon announces. The work will cover those phases of the program of the Electronics Section which involve the theory and application of scientific devices which fundamentally involve the directed flow of electron and ion beams. Dr Marton will also teach a course in electron optics in the National Bureau of Standards Graduate School.

Dr Marton is internationally known for his work in electron optics, particularly in the development and perfection of the electron microscope, which has proven a powerful research tool to science in the study of the structure of molecules, the structure of bacteria, the photography of viruses and other minute objects. He began work on the electron microscope at the University of Brussels in 1932. Dr Marton is currently working on the manuscript of his forthcoming book on electron optics.

Hospital Association Again Names Committee on Standards

As a means of carrying out its work on standardization and simplification of hospital supplies and equipment, the American Hospital Association announces reappointment of its Committee on Purchasing, Simplification, and Standardization. Officers of this committee are:

Paul Burroughs, Pennsylvania Hospital, Philadelphia, Penn., *Chairman*
Neal R. Johnson, Johns Hopkins Hospital, Baltimore, Md., *Vice Chairman*
C. O. Auslander, Michael Reese Hospital, Chicago, Ill., *Vice Chairman*

The Division on Simplification and Standardization has the following membership:

Neal R. Johnson, Johns Hopkins Hospital, Baltimore, Md., *Chairman*
C. O. Auslander, Michael Reese Hospital, Chicago, Ill.
R. M. Porter, Children's Hospital, Columbus, Ohio
Cornelia C. Pratt, Orange Memorial Hospital, Orange, N. J.
Dewey Palmer, Hospital Bureau of Standards and Supplies, New York, N. Y.
James F. Best, Society of the New York Hospital, New York, N. Y.
Warren W. Irwin, Strong Memorial Hospital, Rochester, N. Y.
Paul L. Burroughs, Pennsylvania Hospital, Philadelphia, Pa.
Waldo W. Buss, University Hospital, Ann Arbor, Mich.
John Higgins, Deputy Commissioner, Division of Standards and Purchases, State of New York, Albany
Lee S. Lanpher, Lutheran Hospital, Cleveland, Ohio

In addition to the hospital officials who are members of the committee, a panel of Advisory Members representing groups whose work is closely associated with the hospital association's purchasing and standardization problems have been reappointed. These Advisory Members are:

William E. Braithwaite, Division of Simplified Practice, National Bureau of Standards, Washington, D. C.
G. R. Studebaker, Office of Surplus Property, U. S. Public Health Service, Washington, D. C.
Walter Kirkman, Director, National Association of Purchasing Agents, State Department of Budget and Procurement, Baltimore, Md.
Albert Pleydell, Director, National Institute on Governmental Purchases, Washington, D. C.
Malcolm T. MacEachern, M. D., American College of Surgeons, Chicago, Ill.
H. M. Lawrence, American Standards Association, New York, N. Y.

International Committee On Weights Has Meeting — First Time Since 1937

Committee considers adopting wavelength of spectral line as primary standard of length; definition of units of heat; and revision of international temperature scale

THE International Committee on Weights and Measures met in Sèvres and Paris October 22 to 29, 1946, for its first official session since 1937. Out of 15 members, 11 took part in the session. These were Louis de Broglie of France; G. Cassinis, Italy; M. Châtelain, USSR; E. C. Crittenden, USA; M. Dehalu, Belgium; W. J. deHaas, Netherlands; E. S. Johansen, Denmark; W. Kösters, Germany; Z. Rauszer, Poland; M. Ros, Switzerland; J. E. Sears, Great Britain; and in addition Albert Pérard, director of the International Bureau of Weights and Measures. Members from Rumania, Sweden, and Yugoslavia, who had expected to attend, were unable to get to Paris. From the Japanese member, Professor H. Nagaoka, no news has been received since 1939. Mr Sears was elected president of the Committee until the next session in 1948, and Mr Dehalu was named permanent secretary. The position of Sous-Directeur of the International Bureau of Weights and Measures was reestablished, and Mr Charles Volet was appointed.

The International Bureau of Weights and Measures in Paris was able to continue its work with very little interruption during the war. Rising costs and the inability of some countries to pay their dues have created financial difficulties, however. To meet these and also to provide for the enlarged scope assigned to the Bureau in recent years, the Committee recommended that the General Conference of Weights and Measures scheduled to be held in 1948 arrange for an increase in national contributions to the Bureau.

Technical problems considered by the Committee included the practicability of adopting the wavelength of some spectral line as the primary standard of length, the definition of units of heat, and the revision of the international scale of temperature.

New Electricity and Light Units to Be in Effect in 1948

Definite decisions were made to proceed with the adjustments of the units of electricity and of light which had been planned for 1940, and to introduce the new units into practice as of January 1, 1948.

In these adjustments, the electrical units designated as "international" are to be replaced by "absolute" units derived directly from the basic mechanical units and consistent with them within the errors of measurement. The "international" units used in various countries are slightly different, and as a basis for comparisons mean international units were set up at the International Bureau before the war by taking the means of the units maintained by the national laboratories of France, Germany, Great Britain, Japan, USSR, and the United States. The relations accepted by the International Committee for transferring from one system of units to the other are as follows:

1 mean international ohm = 1.00049 absolute ohms
1 mean international volt = 1.00034 absolute volts

Some questions have arisen regarding the maintenance of the mean ohm since 1939, and the precise relations of the various national units to the absolute values adopted are not yet certain. Differences from the above factors, however, will generally not exceed 1 unit in the last decimal. For the United States, for example, the conversion factor for volts will be 1.00033, while that for ohms will be approximately 1.00050. This makes the U. S. "international" watt equal to 1.00016 "absolute" or mechanical watts. For electrical measurements this relation is very exact, but the combined uncertainties of measurement of the actual absolute magnitudes amount to several parts in 100,000, and the rounded factor 1.0002 may well be used when heat or mechanical energy is to be evaluated.

The units of light to be introduced are the "new candle" and "new lumen", the magnitudes of which are fixed by taking the brightness of a black-body radiator at the temperature of solidification of platinum as 60 candles per square centimeter. For light differing in color from that given by this primary standard the values are determined by use of standard spectral luminosity factors previously adopted by the Committee. This new combination makes the primary unit about 1.8 percent smaller than the old international candle as represented by carbon-filament lamps, but the difference becomes smaller at higher temperatures so that practically no change will be made in the ratings for ordinary tungsten-filament lamps in the United States.

Canada Broadens Scope Of Certification Program

AT the annual meeting of the American Standards Association in November 1946, W. P. Dobson of Canada, representing the American Institute of Electrical Engineers on the Standards Council, reported that certification of electrical materials and appliances by the Canadian Standards Association has become so widely recognized and accepted that it is now beginning to extend to other fields. Some inspec-

tion and approval work has already been done on oil burners; and a procedure is being set up for inspection and approval of electrical equipment and wiring in mines as a safety measure.

The certification program is carried out by the CSA as a part of the national program for protection of property against fire and of Canadian citizens against dangerous electrical shock. The Canadian Electrical Code, parallel to the National Electrical Code in the United States, is used by all the provinces in the country in inspecting electrical installations as a protection against fire and accident hazards. Ninety percent of the population is under provincial inspection and the rest under municipal inspection. One feature of the legislative requirements is that materials and appliances used in installations sold to the public must be approved by the Canadian Standards Association.

The Canadian Electrical Code as prepared by the CSA now includes five parts, as follows:

Part I—Rules and Regulations Governing Electrical Installations and Equipment.
This is the counterpart of the National Electrical Code.

Part II—Specifications for Test and Construction of Equipment dealt with in Part I.
These are the Canadian regulations corresponding to the specifications of Underwriters' Laboratories in the United States.

Part III—Rules for Overhead Construction.

Part IV—Rules Governing Radio Interference.

Part V—Rules and Regulations Governing Electrical Installations in Mines.

Parts III; IV, and V have not yet been issued in complete form.

All of these standards are prepared by CSA committees. In the case of Part I, the majority of the committee consists of representatives of inspection departments, Underwriters' Associations, and others having responsibility of enforcing safety regulations. Fifty percent of the Part II committee consists of manufacturers' representatives and the specifications it prepares must receive the approval of the Part I committee.

The Canadian approval requirequirements follow the requirements of American Standards in the electrical field very closely. As is the case with Underwriters' Laboratories' approval of electrical equipment in the United States, certification of electrical equipment in Canada applies only to safety features; it does not certify satisfactory performance of the equipment.

The Division uses existing laboratories to carry on the tests, the results of which determine whether a certain type or make of electrical equipment or wiring will be granted CSA approval. Practically all electrical testing is carried on by the Laboratories of The Hydro-Electric Power Commission in Toronto and tests on oil burners by the Laboratories of the National Research Council in Ottawa. The CSA may make arrangements with other Canadian laboratories having the necessary facilities. Because of the close agreement between American and Canadian electrical practice, the CSA specifications in most cases parallel those of Underwriters' Laboratories and very satisfactory cooperative contacts are maintained.

The Canadian Standards Association is also working with the U. S. Bureau of Mines in connection with approval requirements for American equipment sold in Canada, and with the Buckston Laboratories in England in connection with British equipment.

The certification and approvals program of the CSA is financed separately and organized as a separate division of the Association known as the Approvals Division.

Interlocking Interests Basis for British-American Talks on Arms

By Brigadier General Donald Armstrong

Assistant to the Chairman, ASA Executive Committee; formerly, Commandant, the Industrial College of the Armed Forces

The leading editorial in the *New York Times* of December 11, 1946 makes the following statement:

> "It is simply an obvious fact, the truth of which has been demonstrated in two vast destructive wars, that Britain and the United States are like-minded democratic nations whose interests overlap and interlock at a hundred different points. From our point of view it is as proper as it is inevitable that American military policy should be based upon that premise. From the British point of view we should think that people who have waited in agonizing suspense for American aid during the early stages of two great wars, and then found that aid, when at last forthcoming, delayed and crippled by lack of just such standardization as is now under consideration, would find the present consultations reassuring rather than disturbing."

This is apropos of the news items that have been carried in recent papers to the effect that standardization of certain weapons between the two nations was being planned and carried out as far as possible.

As a matter of fact, in World War II there was greater weapon standardization between two nations than had ever previously occurred in military history. The British armies were equipped to a great extent with American tanks manufactured in the United States. On the other hand, the United States adopted the British 57-mm antitank gun which was likewise manufactured in the United States as well as in Great Britain. Moreover, the medium field artillery was equipped with the same caliber of weapon used by the British Army, i.e., the 4.5-inch gun. This represented a change in the standard American practice in the past which had always used a 4.7-inch gun. Interchangeability was thus obtained for this type of weapon when the United States Army decided that it would modify its designs to standardize that piece of artillery with the British caliber.

The advantages of such standardization are obvious and if the present effort to standardize screw threads between the United States and Britain is successful, this might be the forerunner of more industrial standardization which would be decidedly advantageous from the point of view of joint security.

International Standards Theme Of Staff Executives' Conference

By C. B. LePage

Secretary, Conference of Staff Executives of Member-Bodies and Associate Members of the American Standards Association

ACCOMPLISHMENTS and past experience in international standardization was the theme considered by the second meeting of the Conference of Staff Executives of Member-Bodies of the American Standards Association held at the Waldorf-Astoria Hotel, New York, N. Y. on the afternoon of November 21, 1946.

The program consisted of brief papers by five engineers, each of whom had had intimate contact with the phase of international standardization on which he reported. E. B. Paxton, of the Standards Department of the General Electric Company, told of the extensive and excellent results in the electrical field which have been accomplished through the activities of the electrical committees of the International Electrotechnical Commission. Paul Diserens, consulting engineer and director of research, Worthington Pump and Machinery Corporation, followed with a similar account of the activities of the power test code committees of the IEC.

Screw Threads, Engineering Materials, Motion Pictures Among Subjects

The third field of activity discussed was that of screw threads. C. B. LePage, assistant secretary of the American Society of Mechanical Engineers, told of the recent efforts which have been made to unify the screw thread practices of Great Britain, Canada, and the United States. He was followed by R. E. Hess, technical secretary of the American Society for Testing Materials, who discussed engineering materials. The fifth of the speakers on this part of the program was D. Hyndman, president, Society of Motion Picture Engineers. Mr Hyndman told of the very extensive progress which has been made in the world-wide standardization of motion picture equipment.

Another feature of this meeting was a report by Dr P. G. Agnew, vice president and secretary of the American Standards Association, on the new International Organization for Standardization in London from which he had recently returned. The ISO has been set up to take the place of the ISA which functioned before World War II.

Warwick, ASTM, Named Chairman; Bugbee, NFPA, Vice Chairman

Two items of business were interjected into the program in the form of a report of a Committee on Bylaws for the Conference by Percy Bugbee, National Fire Protection Association, chairman, and a report of a nominating committee by T. E. Veltfort, Copper and Brass Research Association, chairman. The bylaws report was approved and the temporary officers were re-elected. They are C. Lawrence Warwick, American Society for Testing Materials, chairman; Percy Bugbee, National Fire Protection Association, vice chairman; and Clifford B. LePage, American Society of Mechanical Engineers, secretary.

Mr Paxton pointed out that, since its organization in 1906, the IEC had developed and approved 21 electrical standards or recommendations. To him it seemed remarkable that, through the activities of the earlier international electrical congresses and the IEC, we now have a complete set of international standards for the fundamental electrical units and a long list of standard letter symbols used in electrical quantities. This list of IEC standards includes also specifications for electrical machinery, standard voltages, and rules for electric traction motors.

Mr Hess explained that international discussions had been initiated through the following agencies: (1) International Electrotechnical Commission, (2) International Standards Association (the work of which was suspended during the war), (3) United Nations Standards Coordinating Committee. In no instance, however, he said, had the projects been carried to a point of arriving at a formal agreement, but the exchange of information had been quite helpful. Two projects under the International Electrotechnical Commission had probably been most fruitful—one on shellac and one on transformer oils, Mr Hess declared.

He expressed the opinion that agreement on test procedures probably offered greater promise than the establishment of uniform purchase specifications. These test procedures, however, are quite important, he said, since they provide a common language for the evaluation of materials. Frequently, test procedures used in different countries are not at all comparable. It is possible for a material to be evaluated by the different national test procedures with entirely different results.

Mr Hess further emphasized the importance of supplementing the formal international discussions with informal exchange of information. "Exchange relations have been established already with a number of the standardizing bodies throughout the world, either through ASA channels or through a direct exchange of standards and information," he said. "It is now common practice for committees in this country, such as those of the ASTM, to review and comment upon draft standards submitted by these other organizations. Similarly, comments received from other countries receive consideration in committees in this country when new standards or revisions are under discussion. An outstanding instance of agreement by informal discussion is that of the methods of testing petroleum, where many of the standards issued by the Institute of Petroleum Technologists in Great Britain and those of the ASTM in this country are identical."

Work of IEC Subcommittees On Primemovers Described

Mr Diserens told of the work of three of the advisory committees of the IEC. These are Committee No. 6 on Steam Turbines, Committee No. 4 on Hydraulic Turbines, and Committee No. 19 on Internal-Combustion Engines. Originally the scope of the IEC did not include the primemovers which are necessary to drive the rotating electrical machinery to which the Commission had been giving its attention. This situation was changed at the 1924 meeting held in London. At that meeting the scope

was expanded to include the primemovers. The United States National Committee of the IEC was given the secretariat for the three advisory committees formed to develop standards for the specifications and standard rules for acceptance tests of the three groups of primemovers mentioned above.

Rules and Tests for Steam Turbines Already Completed

To date, IEC specifications for steam turbines and rules for the acceptance tests of steam turbines have been formulated, discussed internationally, and finally approved and published in pamphlet form. This statement applies also to the rules for the testing of hydraulic turbines. The work on the specifications and rules for test of internal-combustion engines were just about completed at the 1938 meeting of the IEC held in Torquay, Deven, England.

Mr LePage, by means of a wall chart, showed the progress which had been made in recent conferences between official delegates from Great Britain, Canada, and the United States toward the unification of screw threads. The first conference was held in New York in December 1943, the second in London in August-September 1944, and the third in Ottawa, September-October 1945.

The basic form of the thread of the common "V" screw thread was of the greatest interest but presented the greatest difficulty due to the difference in the included angle. However, at Ottawa the British delegates agreed to accept the American 60-degree angle and the American delegates agreed to accept the British rounded root and certain changes in the series of pitches. During 1946 the negotiations progressed further. All three groups are looking forward to the fourth ABC conference which will be held in the United States about May 1, 1947. At this conference the problems of tolerances on the various elements of the screw thread and the approved gaging practice will be the subjects of discussion and agreement.

Mr Hyndman opened his remarks by the statement that July 24, 1946 marked 30 years of achievement in motion picture engineering and standardization for the Society of Motion Picture Engineers. "From its first organization meeting, the Society has had as its fundamental aim the standardization of motion picture film, equipment, and accessories from the standpoint of dimensional tolerances, data, processes, nomenclature, and the like which either directly or indirectly might be applicable to the production, distribution, and exhibition phases of the motion picture industry," he said.

"These early organizers of the SMPE were fully cognizant of the importance and value of international standards in any industry. They appreciated that the universality of acceptance of standards internationally brought about understanding and friendship, encouraged freedom of design and application, expanded world markets for trade and permitted interchange of product from one nation to another. The first decade of output was not great in quantity, but quality was being generated to produce well-planned proposals for standardization. In the second decade, the late twenties and early thirties, numerous proposals and SMPE Standards became American Standards. In the early thirties and from then on, the Society entered into and, in so far as possible until the beginning of World War II, continued cooperation with the British and Germans on internationalizing motion picture standards," he said.

In the past decade an even more active program has been carried on, Mr Hyndman explained. Within the past three months the SMPE has forwarded 26 new and revised American Standards on motion pictures to the American Standards Association requesting that they be submitted to the United Nations Standards Coordinating Committee for consideration as proposals for International Standards, he said. The SMPE recommended also that the ASA propose to the UNSCC that the secretariat for international standards on motion pictures be located in the United States, as this country has been the leader in production and standardization of motion pictures. This has now been done by the new International Organization for Standardization.

An additional ten proposals for American Standards are now in various stages drawing rapidly toward completion, and it is the intent of the SMPE to recommend to the ASA that these also be submitted to the new international organization. Numerous other projects for standardization are being considered by the Research Council of the Academy of Motion Picture Arts and Sciences and the SMPE.

Mr Hyndman closed with the thought that if we are to enjoy international harmony there must be unity of effort by all peoples of all nations toward appreciation of the ideas and ideals of each. No better road can be taken than the one through science, engineering, research, producer, distributor, and consumer to reach International Standards.

Recent Action On Consumer Standards

New Committee On Women's Work Clothing—

A new sectional committee to replace the committee that produced four American War Standards on Women's Industrial Clothing is practically completed. This committee will concern itself with the review of the war standards with a view towards converting them to peacetime use. In addition, it is expected that specifications for women's work clothing and uniforms including types, patterns, styles, sizes, construction requirements, and materials will be investigated by this new committee. The Associated Manufacturers of Washable Service Apparel has already accepted the sponsorship for the work to be undertaken.

Consumer Committees Being Considered—

The Advisory Committee on Ultimate Consumer Goods has asked its subcommittee on Minimum Standards for Consumer Goods to investigate the advisability of setting up committees for the establishing of standards for the flammability of textiles, water repellency of textiles, and soap and detergents. The flammability of textiles is a special interest in view of a recent California State Law covering the manufacture and distribution of highly flammable wearing apparel. Due to the recently expanded use of synthetic detergents, the development of standards for soaps and detergents is even more important now than in the past.

—ASA—

Standards Activities

American Standards Approved

Specifications for Methods of Laboratory Sampling and Analysis of Coal and Coke (ASTM D271-46; ASA K18.1-1946) (Revision of ASTM D 271-44; ASA K18.1-1944)

Specifications for Lampblack (ASTM D209-46; ASA K26.1-1946) (Revision of ASTM D209-41; ASA K26-1941)

Specifications for Bone Black (ASTM D210-46; ASA K36.1-1946) (Revision of ASTM D210-41; ASA K36-1941)

Specifications for Prussian Blue (ASTM D261-46; ASA K29.1-1946) (Revision of ASTM D261-41; ASA K29-1941)

Specifications for Chromium Oxide Green (ASTM D263-46; ASA K37.1-1946) (Revision of ASTM D263-41; ASA K37-1941)

Specifications for Slab Zinc (Spelter) (ASTM B6-46; ASA H24.1-1946) (Revision of ASTM B6-37; ASA H24.1-1943)

Sponsor: American Society for Testing Materials

Abbreviations for Use on Drawings, Z32.13-1946

Sponsors: American Institute of Electrical Engineers; American Society of Mechanical Engineers

Standards Being Considered for Approval

Motion Picture Photography—

Theater Projection Rooms (Revision of American Recommended Practice Z22-.28-1941, to be designated as Proposed American Standard Dimensions for Motion Picture Theater Projection Rooms, Z22.28)

Theater Projection Screens (Revision of American Recommended Practice, Z22-.29-1941, to be designated as Proposed American Standard Dimensions for Motion Picture Theater Projection Screens, Z22.29)

Safety Film (Revision of American Recommended Practice Z22.31-1941, to be designated as Proposed American Standard Definition for Motion Picture Safety Film, Z22.31)

Sponsor: Society of Motion Picture Engineers

Surface Roughness, Waviness, and Lay, B46.1

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

New Standards Submitted

Specifications for Soft or Annealed Copper Wire (Revision of ASTM B 3-45; ASA H4.1-1942)

Standards Submitted (Continued)

Bronze Screwed Fittings, 125 Lb, B16.15

Sponsors: American Society of Mechanical Engineers; Heating, Piping and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry

Limits and Fits for Engineering and Manufacturing, B4.1

Sponsor: American Society of Mechanical Engineers

Methods of Testing Molded Materials Used for Electrical Insulation (ASTM D48-46T; ASA C59.1-1944)

Sponsor: American Society of Mechanical Engineers

Test for Ash Content of Petroleum Oils (ASTM D482-46)

Test for Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products (Revision of ASTM D 86-45; Z11.-10-1945)

Test for Flash and Fire Points by Means of Open Cup (Revision of ASTM D 92-45; Z11.6-1945)

Test for Flash Point by Means of the Pensky-Martens Closed Tester (Revision of ASTM D93-42; Z11.7-1942)

Test for Water in Petroleum Products and Other Bituminous Materials (Revision of ASTM D95-40; Z11.9-1940)

Test for Water and Sediment in Petroleum Products by Means of Centrifuge (Revision of ASTM D96-40; Z11.8-1940)

Test for Carbon Residue of Petroleum Products (Conradson Carbon Residue) (Revision of ASTM D 189-41; Z11.25-1941)

Test for Knock Characteristics of Motor Fuels (Revision of ASTM D 357-45; Z11.37-1945)

Test for Gum Content of Gasoline (Revision of ASTM D381-44; Z11.36-1944)

Sponsor: American Society for Testing Materials

Standards Being Considered for Reaffirmation

Specifications for Hot-Rolled Copper Rods for Electrical Purposes (ASTM B 49-41; ASA H4.7-1942)

Sponsor: American Society for Testing Materials

Test for Flash Point by Means of the Tag Closed Tester (ASTM D56-36; Z11.24-1936)

Test for Melting Point of Paraffin Wax (ASTM D87-42; Z11.4-1942)

Test for Precipitation Number of Lubricating Oils (ASTM D91-40; Z11.30-1940)

Test for Cloud and Pour Points (ASTM D97-39; Z11.5-1939)

Test for Melting Point of Petrolatum (ASTM D127-30; Z11.22-1932)

Standards Being Considered for Reaffirmation (Continued)

Analysis of Grease (ASTM D128-40; Z11.16-1940)

Detection of Free Sulphur and Corrosive Sulfur Compounds in Gasoline (ASTM D130-30; Z11.21-1930)

Test for Color of Refined Petroleum Oil by Means of Saybolt Chromometer (D156-38; Z11.35-1938)

Test for Steam Emulsion of Lubricating Oils (ASTM D157-36; Z11.15-1936)

Test for Distillation of Gas Oil and Similar Distillate Fuel Oils (ASTM D158-41; Z11.26-1941)

Test for Burning Quality of Kerosine Oils (D187-39; Z11.17-1939)

Abridged Volume Correction Table for Petroleum Oils (ASTM D206-36; Z11.1-1936)

Test for Distillation of Natural Gasoline (ASTM D216-40; Z11.11-1940)

Test for Burning Quality of Long-Time Burning Oil for Railway Use (D219-36; Z11.19-1936)

Test for Burning Quality of Mineral Seal Oil (ASTM D239-30; Z11.18-1930)

Test for Thermal Value of Fuel Oil (ASTM D240-39; Z11.14-1939)

Sampling Petroleum and Petroleum Products (ASTM D270-33; Z11.33-1935)

Test for Distillation of Crude Petroleum (D285-41; Z11.32-1941)

Test for Autogenous Ignition Temperatures of Petroleum Products (ASTM D286-30; Z11.23-1932)

Test for Gravity of Petroleum and Petroleum Products by Means of the Hydrometer (ASTM D287-39; Z11.31-1939)

Definition of Terms Relating to Petroleum (ASTM D288-39; Z11.28-1939)

Test for Dilution of Crankcase Oils (ASTM D322-35; Z11.29-1935)

Test for Vapor Pressure of Petroleum Products (Reid Method) (ASTM D323-43; Z11.44-1943)

Standard Viscosity-Temperature Charts for Liquid Petroleum Products (ASTM D341-43; Z11.39-1943)

Conversion of Kinematic Viscosity to Saybolt Universal Viscosity (ASTM D446-39; Z11.46-1941)

Test for Distillation of Plant Spray Oils (ASTM D447-41; Z11.43-1941)

Test for Unsulfonated Residue of Plant Spray Oils (ASTM D483-40; Z11.41-1940)

Specifications for Stoddard Solvent (ASTM D484-40; Z11.42-1940)

Test for Carbon Residue of Petroleum Products (Ramsbottom Carbon Residue) (ASTM D524-42; Z11.47-1942)

Test for Tetraethyl Lead in Gasoline (ASTM D526-42; Z11.48-1942)

Test for Dropping Point of Lubricating Grease (ASTM D566-42; Z11.51-1943)

Calculating Viscosity Index (ASTM D567-41; Z11.45-1941)

Sponsor: American Society for Testing Materials

Preferred Numbers, Z17.1-1936

New Projects Being Considered

Linemen's Rubber Protective Equipment (peacetime project)

New Projects Proposed

Standards in Optics

Steel Raceways for Electrical Wiring Systems

Standards Withdrawn

Electrical Indicating Instruments (2½- and 3½-Inch, Round, Flush-Mounting, Panel-Type), American War Standard, C39.2-1944

Shock-Testing Mechanism for Electrical Indicating Instruments (2½- and 3½-Inch, Round, Flush-Mounting, Panel-Type), American War Standard, C39.3-1943

Dimensions for External Radio-Frequency Thermo-Couple Converters (120 Milliamperes to 10 Amperes, Inclusive), American War Standard, C39.4-1943

External Ammeter Shunts for Panel-Type Instruments, American War Standard, C39.5-1943

Sponsor: Electrical Standards Committee

Color Fastness Tests May Become American Standards

Dr Jules Labarthe, Jr, was re-elected chairman of the ASA Sectional Committee on Fastness of Colored Textiles, L14, at its last meeting. Discussion at the meeting on the list of textile test methods submitted to the United Nations Standards Coordinating Committee last year for international consideration indicated that 62 of the methods are now ready for presentation to the ASA by the sponsoring organizations for consideration as American Standards. Of the remaining number, 24 must be harmonized with similar standards of other groups before being submitted to ASA, while the other 10 require additional study and research.

The American Association of Textile Chemists and Colorists and the American Society for Testing Materials are sponsors for the work of Committee L14.

List of New Standards To Be in Next Month's Issue

The customary listing of new standards available in the ASA Library has been omitted this month because of the shortage in paper. It is expected that an up-to-date list of these standards published by associations, technical societies, the U. S. Government, and standards published in other countries will appear in the March issue.

Book Marks

Standard Code for Arc and Gas Welding in Building Construction (American Welding Society, 33 West 39th Street, New York 18, N. Y., 50¢)

In its earlier edition (1941-tentative), this code was widely adopted by municipalities for the administration of welded construction under their jurisdiction. This 1946 publication embodies revisions based on experience in the recent applications of welding to structural fabrication and on further research investigations. Among those revised are the sections on filler metal, workmanship, inspection and qualification of welding operators, and procedures; while the section on design now provides for increased allowable weld unit stresses equal to those allowed for the steel being welded.

Colour and Lighting in Factories and Offices. (British Colour Council, 28 Sackville Street, London, W1, England, 8/—)

This work of the British Colour Council has been undertaken with the object of lessening the risk of accidents, relieving mental and physical strain, reducing absenteeism, ensuring concentration, avoiding monotony, and increasing output in industrial premises. During the changeover from war to peacetime production, Robert F. Wilson, art director of the Council, has been called upon to advise on color and lighting in factories and offices. This compilation is a continuation of that undertaken during the war, by permission of the Council's Board of Management, for service establishments and war factories. The underlying principles have not been changed and the most important aspect of the changeover is the window space again available after six years of blackout. This will be appreciated when it is realized that color is dependent upon light for its total or partial revelation.

The book contains sections dealing with color, health, basic principles, color classification, the importance of lighting in relation to decoration, and general notes on color schemes. Specimen color schemes with notes on their use are shown for factories, offices, entrance halls, cloak rooms and lavatories, rest rooms, welfare clinics, and canteens. An accompanying paint card shows the full range of 25 colors, in matt and glossy surfaces, used in the color schemes with an identification number.

Best's Safety Directory. 1946 Edition (Alfred M. Best Company, Inc, Best Building, 75 Fulton Street, New York 7, N. Y., $5.00)

Within one volume, the Alfred M. Best Company, Inc, publisher of *Safety Engineering* magazine, has compiled a comprehensive guide to the many hundreds of recognized safety and protective products and devices available to American industry.

Realizing the difficulties that faced them when they undertook so tremendous a task, the editors sought expert advice from safety leaders in widely diversified lines of industry, from insurance company safety engineers and inspectors, as well as from the leading safety equipment manufacturers before publishing this Directory.

The main part of the book contains concise information. Wherever possible, an illustration and description of the device is given, along with an explanation of its uses, the hazards it is designed to overcome, and the names and addresses of the manufacturers. Also included are references to many of the American Standard Safety Codes covering such topics as foot protection, respiratory protection, industrial sanitation, lighting equipment, dust and fume control, guards and accessories, signs and signal equipment, and materials handling equipment.

A sales office and distributors' section containing a national geographical listing of local sales outlets and an alphabetical index to advertisers are among the other features incorporated within the Directory.

New American Standards Available

American Standards Association • ASA • 70 East 45th Street, New York 17, N. Y.

No. of Copies	ASA Number	Title and Description of Standard	Price
.....	A9.1-1946	**Building Exits Code** ..... This, the eighth edition of the Code, covers the construction, arrangement, and use of exit facilities for safety.	**$1.00**
.....	H7.1-1946	**Copper and Copper Base Alloy Forging Rods, Bars, and Shapes, Specifications for (ASTM B124-46)** ..... Compositions for twelve alloys are given in this revision of the 1945 edition.	**.25**
.....	H8.1-1946	**Free-Cutting Brass Rod and Bar for Use in Screw Machines, Specifications for (ASTM B16-46)** ..... Originally adopted in 1918, the rods and bars covered in this latest revision are suitable for high-speed screw machine work.	**.25**
.....	H23.1-1946	**Copper Water Tube, Specifications for (ASTM B88-46)** ..... These specifications cover seamless copper tubes especially designed for plumbing purposes, underground water services, etc, but also suitable for copper coil water heaters, fuel oil lines, gas lines, etc.	**.25**
.....	L12.1-1946 L12.2-1946 L12.4-1946	**Cotton Filling Materials for Bedding and Upholstery, Definitions (Including Tolerances) for** ..... **Wool Filling Materials for Bedding and Upholstery, Definitions (Including Tolerances) for** ..... **Miscellaneous Filling Materials for Bedding and Upholstery, Definitions for** ..... Sponsored by the National Association of Bedding and Upholstery Law Enforcement Officials, these standard definitions have been prepared in order to obtain a greater degree of national uniformity on laws and regulations that affect production and distribution of bedding and upholstery.	**.50**
.....	Z14.1-1946	**Drawings and Drafting Room Practice** ..... This revision includes arrangement of views, lines and line work, sectional views, screw thread representation, dimensioning, notes, trimmed sizes of drawing paper and cloth, titles and lettering.	**1.50**
.....	Z38.7.18/—	**Intermediate and Larger Lantern Slides, Dimensions for (First Draft)** . Dimensions for intermediate 2½ x 2½-inch and the 4 x 5-inch lantern slides are included in this first draft, which is published for trial and criticism.	**.15**
.....	Z38.8.7-1946	**Radiographic Film Processing Tanks, Internal Dimensions for** ..... This standard recognizes both thin-walled metal tanks with flanged rims and moulded tanks of various compositions and wall thickness, with or without extensions above the hanger cross-bar ledges.	**.15**
.....	Z38.8.8-1946	**Deep Tanks for Commercial Photofinishing, Internal Dimensions for** .. The inside dimensions of deep tanks for the commercial processing of amateur roll film are covered herein.	**.15**
.....	Z38.8.9-1946	**Scales, Graduates, and Thermometers for Use in Photography, Accuracy of** ..... The tolerances specified in this standard are satisfactory for compounding all ordinary photographic processing solutions.	**.15**

ASA COMPANY MEMBERS *are entitled to one free copy of each newly approved American Standard for the first $50 of annual membership, and an additional copy for each $100 beyond this. These standards can be obtained through your company representative. We will be glad to give you his name, if necessary.*